CLAIMS

1. A method of acquiring a signal at a telecommunications system receiver with the aid of acquisition assistance data, comprising:

a) obtaining acquisition assistance data at the receiver, including data provided by an entity remote from the receiver;

b) determining, subsequently to a time of obtaining the acquisition assistance data, a need for the receiver to acquire a particular signal;

c) evaluating a validity of the previously obtained acquisition assistance data for use in acquiring the particular signal; and

d) calculating an expected time of arrival parameter of the particular signal based in part on an estimate of receiver clock bias.

2. The method of claim 1 wherein said expected time of arrival parameter is an expected value.

3. The method of claim 1 wherein said expected time of arrival parameter is an expected window.

4. The method of claim 1 wherein the receiver is a cellular telecommunications system mobile station.

5. The method of claim 4 further comprising obtaining a clock bias estimate for the receiver from the previously obtained acquisition assistance data, and using the estimated receiver clock bias to calculate an estimated time of arrival and arrival time uncertainty window at the receiver for acquiring the particular signal if the previously obtained acquisition assistance data is determined to be still valid.

6. The method of claim 1 further comprising requesting new acquisition assistance data from an entity remote from the receiver if more than a threshold quantity of time has elapsed since the previous acquisition assistance data was obtained.

7. The method of claim 6 wherein a value of the threshold depends upon an order of an equation describing Doppler shift for which the receiver has accurate coefficients.

8. The method of claim 1 wherein said evaluating comprises determining whether the receiver has moved by an amount that jeopardizes the validity of the previously obtained acquisition assistance data.

9. The method of claim 1 further comprising: determining a need to acquire a plurality of signals; acquiring a first of the plurality of signals; and employing measured

parameters of the first of the plurality of signals to calculate a search window for acquiring another of the plurality of signals.

10. The method of claim 1 wherein the receiver is a mobile station in a cellular telecommunications system.

11. The method of claim 10 further comprising modifying the previously obtained acquisition assistance data to compensate for movement of the mobile station since the acquisition assistance data was obtained.

12. The method of claim 10 further comprising determining that the mobile station has moved based upon a comparison between a present neighbor list and a previous neighbor list.

13. The method of claim 10 further comprising determining that the mobile station has moved based upon a comparison between a presently active base station set for the mobile station and a previously active base station set for the mobile station.

14. The method of claim 10 further comprising determining that the mobile station has moved based upon comparison between a present serving base station for the mobile station and a previous serving base station for the mobile station.

15. A method of acquiring a signal at a telecommunications system receiver with the aid of acquisition assistance data, comprising:

a) determining a need to acquire a plurality of signals at a receiver;

b) acquiring a first of the plurality of signals at the receiver; and

c) employing measured parameters of the first of the plurality of signals to calculate acquisition assistance data for a second of the plurality of signals.

16. The method of claim 15 further comprising obtaining acquisition assistance data from an entity remote from the receiver.

17. The method of claim 15 wherein the receiver is a mobile station in a telecommunications system, and the mobile station employs measured parameters of the acquired first of the plurality of signals to calculate an estimated time of arrival for the second of the plurality of signals.

18. The method of claim 15 wherein the receiver is a mobile station in a telecommunications system, and the mobile station employs measured parameters of the acquired first of the plurality of signals to calculate a time of arrival uncertainty window for the second of the plurality of signals.

19. The method claims 15 further comprising obtaining acquisition assistance data from a remote entity prior to determining a need to acquire a plurality of signals; and evaluating a validity of the prior obtained acquisition assistance data for use in acquiring at least one of the plurality of signals.

20. The method of 15 further comprising determining that some previously received acquisition assistance data is invalid due to movement of the receiver subsequent to receiving the acquisition assistance data.

21. The method claim 15 further comprising determining that the receiver has moved based upon a combination of comparisons selected from (a) a present neighbor list of the receiver to a previous neighbor list of the receiver, (b) a present active base station list of the receiver to a previous active base station list of the receiver, and (c) a present serving base station for the receiver to a previous serving base station for the receiver.

22. The method claim 17 further comprising compensating an estimated time of arrival based on previously obtained acquisition assistance data, for movement of the receiver subsequent to obtaining the previously obtained acquisition assistance data.

23. The method claim 17 further comprising compensating a calculated time of arrival uncertainty window, based on previously obtained acquisition assistance data, for movement of the receiver subsequent to obtaining the previously obtained acquisition assistance data.

24. A method of acquiring a signal at a mobile station telecommunications system receiver with the aid of acquisition assistance data, comprising:

a) obtaining first acquisition assistance data at the mobile station while the mobile station is at a first location; and

b) compensating the first acquisition assistance data at the mobile station for a new location of the mobile station to aid a search for a signal by the mobile station at a different second location.

25. The method of claim 24 wherein the first acquisition assistance data includes data obtained from a remote entity, and includes an estimated time of arrival.

26. The method of claim 25 further comprising deriving an mobile station clock bias from the acquisition assistance data and using the derived mobile station clock bias to calculate, at the mobile station, the estimated time of arrival.

27. The method of claim 24 wherein the first acquisition assistance data includes data obtained from a remote entity, and includes a time of arrival uncertainty window.

28. The method of claim 27 further comprising deriving an mobile station clock bias from the acquisition assistance data and using the derived mobile station clock bias to calculate, at the mobile station, the time of arrival uncertainty window.

29. The method of claims 24 further comprising evaluating a validity of the first acquisition assistance data before using it to aid in acquiring a particular signal.

30. The method of claim 24 further comprising using some of the first acquisition assistance data only if less than a predetermined quantity of time has elapsed since the data was obtained.

31. The method of claim 24 wherein a value of the predetermined quantity of time depends upon an order of an equation describing Doppler shift for which the mobile station has accurate coefficients.

32. The method of claim 24 further comprising determining that the mobile station has moved based upon any combination of comparisons selected from (a) a present neighbor list of the receiver to a previous neighbor list of the receiver, or (b) a present active base station list of the receiver to a previous active base station list of the receiver, or (c) a present serving base station for the receiver to a previous serving base station for the receiver.

33. The method of claim 24 further comprising determining a need to acquire a plurality of signals; acquiring a first of the plurality of signals; and employing measured parameters of the first of the plurality of signals to aid acquisition of another of the plurality of signals.

34. A method of determining changes to a location of a mobile station in a cellular telecommunications system, comprising:

a) obtaining a list of base stations relevant to the mobile station according to particular criteria at a first time;

b) obtaining a list of base stations relevant to the mobile station according to the particular criteria at a later second time; and

c) comparing the later list of relevant base stations to the previous list of base station neighbors.

35. The method of claim 34 wherein the list of base stations are active sets of base stations.

36. The method of claim 34 further comprising performing steps a), b) and c) for a second set of base stations that are relevant to the mobile station according to a second set of criteria.

37. The method of claim 34 wherein the second set of base stations is a neighbor list.

38. The method of claim 34 further comprising combining results of the comparison in step c) of first and later base stations belonging to a set relevant to the mobile station according to particular criteria with results of a comparison of first and later base stations belonging to a different set that is relevant to the MS according to second criteria.